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Examining the Role of Ethnic Identity in the Relationship Between Characteristics of Autism Spectrum Disorders and Eating Disorders

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EXAMINING THE ROLE OF ETHNIC IDENTITY IN THE RELATIONSHIP BETWEEN CHARACTERISTICS OF AUTISM SPECTRUM DISORDERS AND EATING DISORDERS

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ABSTRACT

EXAMINING THE ROLE OF ETHNIC IDENTITY IN THE RELATIONSHIP BETWEEN CHARACTERISTICS OF AUTISM SPECTRUM DISORDERS AND EATING DISORDERS

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The present work provides a synthetic literature review investigating the potential role of ethnic identity in the relationship between Autism Spectrum Disorders (ASD) and eating disorders (EDs). To date, there is no literature that directly examines the role that ethnic identity may play in the relationship between these two disorders. However, there is reason to believe it may; previous literature has shown that race/ethnicity plays a role in both of these disorders, and the role of ethnic identity has been more fully explored in the ED population. Notably, there is little research that examines the role of ethnic identity on ASD diagnoses. Based on the literature addressing the roles of race/ethnicity and ethnic identity in EDs along with the role of race/ethnicity in ASD, a hypothesis was formulated and explored in an attempt to facilitate an understanding of the role that ethnic identity has on the relationship between EDs and ASD. The thesis concludes by highlighting implications for clinical practice and offering suggestions for future research.

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Overview

Current treatments for eating disorders (EDs) lack efficacy, given that they have the highest mortality rate of any psychological disorders (Smink, van Hoeken, & Hoek, 2012). However, there have been many advances in this field and reason for hope that with greater understanding of EDs will come more effective treatments. One particularly interesting and promising line of inquiry has suggested a relationship between EDs and Autism Spectrum Disorder (ASD). If a relationship between these two disorders is supported, clinicians can adapt treatment protocols to match the needs of the patient, particularly the patient who is presenting with characteristics of ASD combined with their ED symptoms. The relationship between EDs and ASD could also help to explain some of the treatment resistance in patients diagnosed with an ED, as patients may not be receiving appropriate treatment that adequately addresses their ED symptoms alongside their ASD symptoms. Further complicating this potential relationship is the possible impact of race/ethnicity; current research on the topic has not directly addressed the role of race/ethnicity in the relationship between ASD and EDs, but given the body of research suggesting race/ethnicity may play a role in the diagnosis of both EDs (Becker, Franko, Speck, & Herzog, 2003; George & Franko, 2010) and ASD (Mandell, Listerud, Levy, & Pinto-Martin, 2002), it is important to understand whether it is a factor in the relationship between EDs and ASD. Moreover, if race/ethnicity does in fact play some role in the relationship between EDs and ASD, it would be important to understand the underlying mechanisms that may be at play. It is proposed in this thesis that the role of race/ethnicity on this relationship may be related to the degree in which one's ethnic identity operates. Thus, the current work will summarize and synthesize the literature on the relationship between EDs and ASD, as well as explore the potential role of race/ethnicity and ethnic identity as they pertain to this relationship.

Statement of the Problem

Current research has suggested a relationship between EDs and ASD (Baron-Cohen et al., 2013; Coombs, Brosnan, Bryant, Waugh, & Skevington, 2011; Huke, Turk, Saeidi, Kent, & Morgan, 2013; Mandy & Tchanturia, 2015; Pooni, Ninteman, Bryant-Waugh, Nicholls, & Mandy, 2012; Tchanturia et al., 2013; Wentz et al., 2005). For example, a systematic review of the literature in this field has suggested there is an overrepresentation of ASD in samples of individuals who are diagnosed with an ED (Huke et al., 2013). Compared to the general population, where approximately one percent of the population is diagnosed with ASD, in a sample of individuals with EDs, one study found that 23% of the participants had clinically significant symptoms of ASD (American Psychiatric Association, 2013; Wentz et al., 2005). Another study used a clinical interview format to assess ASD in an ED population and found that five of the 10 women assessed met criteria for ASD (Mandy & Tchanturia, 2015). Some researchers suggest that the relationship between the two disorders is due to the severity of ED symptoms and is a result of the physiological effects of hunger (Oldershaw et al., 2011); however, Mandy and Tchanturia's (2015) study refutes this hypothesis, as the participants in the study indicated they had symptoms related to ASD in childhood, prior to the onset of their ED.

Research has further suggested that specific characteristics are found to be similar in individuals who are diagnosed with ASD and individuals who are diagnosed with an ED. In particular, researchers have found that individuals with EDs and individuals with ASD demonstrate comparable scores on scales measuring empathizing and systemizing traits (Baron-Cohen et al., 2013; Oldershaw et al., 2011). Empathizing is defined as being able to experience another person's emotions and thoughts and responding with an appropriate emotion (Baron-Cohen & Wheelwright, 2004). When an individual feels an emotion that is triggered by another

person's emotion, it is considered empathy. Systemizing is "the drive to analyze, explore, and construct a system" (Baron-Cohen & Wheelright, 2004; p. 170). Individuals express high levels of systemizing traits when they are interested in the process of how things work and mechanical functions. Individuals diagnosed with an ED tend to score higher on scales measuring systemizing traits and lower on scales measuring empathizing traits, consistent with Baron-Cohen's (2002) Extreme Male Brain theory of ASD (which reflects the idea that individuals with ASD tend to be higher in systemizing traits and lower in empathizing traits, just as males show similar patterns relative to females). However, this finding is not supported in all research studies. A pilot study conducted by Hambrook, Tchanturia, Schmidt, Russell and Treasure (2008) found that individuals diagnosed with an ED (anorexia nervosa) scored similarly to a healthy control group on scales assessing for systemizing and empathizing traits, although the ED group did score significantly higher than healthy controls on a scale measuring ASD traits. However, this was a pilot study with a relatively small sample size ($N = 67$) that may not have provided enough power to accurately detect differences between and the ED group and a healthy control group.

Samples of individuals with ASD and samples of women with an ED also tend to demonstrate similar impairment in tasks related to theory of mind (recognizing that others may have a different set of beliefs, perspectives, and thoughts), central coherence (the ability to understand context), and set-shifting (the ability to shift attention between tasks; Huke et al., 2013; Oldershaw et al., 2011). Additionally, children with ASD oftentimes experience difficulties surrounding food and eating (Schreck, Williams, & Smith, 2004). For example, children with ASD may have certain foods they prefer or they may only eat foods that have

certain textures. They also may choose to engage in specific rituals surrounding food or their mealtime.

To date, there has been no focus on the race/ethnicity of the participants, or the potential role of race/ethnicity in the systemizing-empathizing relationship. The literature seems to suggest there is a relationship between the role of race/ethnicity in the diagnosis and treatment of both ASD and EDs. Whereas research in the field of ASD and EDs suggests that the disorders can impact individuals from any race, the majority of the research studies involve Caucasians, and research suggests that the majority of individuals who receive a diagnosis and treatment for both of these disorders are Caucasians (Becker et al., 2003; George & Franko, 2010; Mandell et al., 2002). The question is whether this overrepresentation of Caucasians in ASD and ED diagnoses is a result of factors related to the race of participants, or if it is likely that this finding can be generalized to other racial groups as well (who have not been included in the current literature). For example, is there something inherent about identifying as Caucasian that increases the likelihood of an individual being diagnosed with an ED and/or ASD, or are the observed racial differences related to factors such as clinician bias or systematic differences in clients' willingness to seek and/or access to treatment? By further investigating the role that race has on these disorders individually and then synthesizing the literature in order to develop a better understanding of the overlap between these disorders, the goal is to develop a better understanding of the racial group differences. The goal is to understand if the racial group differences are related to one or more biases affecting diagnosis or instead if race may actually serve as a risk/protective factor for individuals, and if the latter, why this may be the case.

Moreover, if the hypothesis that race/ethnicity is an important factor to consider when examining the relationship between EDs and ASD, it would be just as important to understand

whatever mechanisms underlie how and why race/ethnicity operates as such. That is, race/ethnicity as a demographic factor is simply a descriptor of a characteristic, but it does not provide much insight into why race/ethnicity matters. It is hypothesized herein that ethnic identity may be one possible psychological mechanism at play toward explaining why the role of race/ethnicity seems to play a role in ED diagnosis, ASD diagnosis, and perhaps the relationship between them. For example, ethnic identity and diagnoses of EDs and ASD may be related because of cultural opinions about mental health diagnoses, doctors, etc., either from the individual diagnosed or the family (depending on the individual's level of functioning). Furthermore, ethnic identity is an important topic to explore when attempting to understand EDs and ASD given that ethnic identity could potentially impact the diagnosis and treatment of the disorder; this in turn may have practical implications for the training and professional development of practitioners.

Of the studies that have observed a relationship between ASDs and EDs, only one study included the racial makeup of the participants (Coombs et al., 2011). In Coombs et al.'s (2011) study, 97.7% of participants identified as Caucasian, clearly not representative of the racial distribution of the general population. However, it should be noted that the majority of the studies that have found a relationship between characteristics of ASD and ED symptomatology have recruited participants with clinically significant EDs (Baron-Cohen et al., 2013; Mandy & Tchanturia, 2015; Pooni et al., 2012; Wentz et al., 2005). Although current research suggests that EDs do not discriminate between racial groups, research also suggests that compared to other racial groups, Caucasians are more likely to receive a diagnosis of an ED and subsequent treatment (Becker et al., 2003; George & Franko, 2010). Similarly, current research in the field of ASD suggests that ASD can impact an individual of any race; however, compared to

Caucasian children, African American children received a diagnosis of ASD on average a year and a half later (Mandell et al., 2002). Mandell et al. also found that, in order to receive a diagnosis of ASD, children who were of African American descent had to attend three times the number of visits than Caucasian children. To date, there has not yet been a thorough review and synthesis of the literature that might help provide insights into why these differential diagnoses in EDs and ASD exist across races/ethnicities.

This review will focus on ethnic identity (rather than strictly more categorical variables such as race or ethnicity), because there is some literature suggesting that the degree to which an individual identifies himself or herself as connected to his or her racial or cultural heritage may in fact be more crucial toward understanding a variety of psychosocial outcomes than his or her race or ethnicity itself (Mukai, Kambara, & Sasaki, 1998; Osvold & Sodowsky, 1993; Robinson et al., 1996). For example, African-Americans who surround themselves with Caucasian peers will likely have different social and developmental experiences compared to those who surround themselves with peers from their same racial or ethnic group. To further extend this example, people in the former group—who may have a weaker ethnic identity—may adhere more to "Caucasian standards of beauty," whereas those in the latter group—who may have a stronger ethnic identity—may adhere to more "African American standards of beauty" (which, research suggests, can be quite different). In this way, ethnic identity may indirectly influence an individual's tendency towards developing specific EDs (which the literature suggests is influenced by one's perception of one's peer group's standards of beauty).

Similarly, when examining the role of ethnic identity in ASD, certain groups are more likely to subscribe to a diagnosis of ASD than other ethnic groups (Mandell, & Novak, 2005). Regardless of the predetermined race that a person is assigned, how an individual identifies

oneself may be more important. In this example, if an individual is immersed in a culture that does not subscribe to the idea of mental health disorders, his or her strong ethnic identity may impede the diagnosis and treatment of ASD, compared to someone of a similar race who does not have a strong ethnic identity with that specific group.

Overall, there is not a lot of literature that directly examines the relationship between race/ethnicity and ASD or ethnic identity and ASD. It seems that primarily ED development may be more influenced by ethnic identity and how an individual perceives him or herself. However, diagnosis and treatment for both of these disorders may be related more to observed race.

Purpose and Research Questions

The purpose of this synthetic literature review is to summarize the previous literature regarding the relationship between ED symptomatology and characteristics of ASD, and synthesize it with literature that addresses the potential role of race/ethnicity in this relationship. In particular, this review will integrate the literature on ethnic identity, as it potentially relates to ED symptomatology and ASD characteristics.

Statement of Potential Significance

While the literature to date does generally support (albeit not conclusively) the presence of a relationship between characteristics of EDs and characteristics of ASD, little to no consideration has been taken for the impact that race/ethnicity may play in the relationship (Baron-Cohen, et al., 2013; Coombs et al., 2011; Huke et al., 2013; Pooni et al., 2012; Tchanturia et al., 2013; Wentz, et al., 2005). Although research suggests that EDs and ASD impact individuals regardless of their race/ethnicity, there continues to be an overrepresentation of Caucasians receiving treatment for both of those disorders (Becker et al., 2003; George &

Franko, 2010; Mandell et al., 2002). When clinicians and researchers attempt to understand these disorders independently and collectively, it is imperative to consider the role of race/ethnicity—and any psychological mechanisms related to it, such as ethnic identity—so that individuals are able to receive the proper diagnosis and treatment. A more complete understanding of the potential role of race/ethnicity and its accompanying psychological mechanisms in the relationship between ED symptomatology and ASD characteristics may be fruitful toward developing more targeted treatment interventions for more effectively engaging clients of different backgrounds, as well as laying groundwork for future empirical studies.

Theoretical Foundation or Conceptual Framework

When examining the relationship between ED symptomatology and characteristics of ASD, similarities can be seen between empathizing and systemizing traits. Baron-Cohen (2002) described a theory to represent individuals with ASD based on the systemizing-empathizing framework called "the Extreme Male Brain theory" (see Figure 1). In the general population, males tend to score higher on systemizing traits and lower on empathizing traits compared to females. Current literature has not examined the role of race/ethnicity in the systemizing-empathizing relationship. Individuals with ASD, tend to score even more heavily on systemizing and weaker on empathizing traits, thus coining the term "extreme male brain." This phenomenon is also commonly seen in individuals with an ED (Baron-Cohen et al., 2013; Oldershaw et al., 2011), providing further evidence for the relationship between characteristics of EDs and characteristics of ASD.

Summary of Methodology

The primary data sources that inform this synthetic literature review will be the original empirical studies related to the topic (typically as published in peer-reviewed academic journals,

but dissertations and theses will be considered when relevant and deemed to be of high quality), as well as conceptual and/or review pieces published in peer-reviewed journals, handbooks, and academic trade books. Numerous academic search engines will be employed, including but not limited to Google Scholar, Academic Search Elite, Scopus, and PsycINFO. The researcher intends to search terms broadly related to eating disorders, race, and autism spectrum disorders; specifically, search terms will include (individually and in combination) "eating disorders," "Autism Spectrum Disorders," "ethnic identity," "relationship between eating disorders and Autism Spectrum Disorders," "race and eating disorders", "race and autism spectrum disorder", "ethnic identity and eating disorders", "ethnic identity and Autism Spectrum Disorders." Key author search terms include Jean Phinney (ethnic identity), Kathryn Gordon (the role of race in the clinical detection of eating disorders), Simon Baron-Cohen (autism), Kate Tchanturia (the relationship between EDs and ASD), and David Hambrook (the relationship between EDs and ASD). Key models and theories that were drawn upon in this thesis include Baron-Cohen's (2002) "Extreme Male Brain" theory, Erikson's (1968) theory of psychosocial development, and Tajfel and Turner's (1986) social identity theory. The researcher also will use the references available in the relevant articles to expand the range of applicable research; the researcher also plans to consult Google Scholar to link to articles published after the relevant articles that cite it. As this is a relatively recent area of research, the researcher did not limit the range of years when searching for related articles.

Definition of Key Terms

There are a variety of terms and theories that need to be discussed in order to establish a clear understanding of subsequent sections. Key terms will be conceptually defined based on the discussion in current literature, as well as operationally defined so that it is clear how these concepts will be assessed in the current research proposal.

Autism spectrum disorder. The first topic that needs to be clearly defined is Autism Spectrum Disorder (ASD). According to the Diagnostic and Statistical Manual, there are two characteristics that a person must possess in order to receive a proper diagnosis (American Psychiatric Association, 2013). The first characteristic is that they must have deficits in social communication and interactions that are evident across multiple contexts. Examples of these deficits are provided in the DSM-5, but they include examples such as a difficulty initiating social interactions, a difficulty engaging in nonverbal communication, and a difficulty establishing friendships. The second characteristic that must be present is "repetitive patterns of behavior, interests, or activities". In order to meet a diagnosis of ASD, an individual must present with symptoms early in their development, the symptoms cannot be better explained by another psychological or physical illness, and the symptoms must cause clinically significant impairment.

Eating disorders. Overall, eating disorders (EDs) are defined as a group of disorders that create a disturbance of eating or eating-related behaviors (American Psychiatric Association, 2013). This disturbance impacts the consumption or absorption of food. There are five types of EDs that will be monitored in the present study: Anorexia Nervosa (AN) Bulimia Nervosa (BN), Binge Eating Disorder (BED), Other Specified Feeding or Eating Disorder (OSFED), and

Unspecified Feeding or Eating Disorder (UFED). AN is characterized by a limit in caloric intake, a fear of weight gain or becoming fat, and an incongruence in the way that a person's body is experienced. BN is characterized by episodes of binge eating followed by episodes of inappropriate compensatory methods (purging, laxative use, fasting, excessive exercise, etc.). BED is characterized by episodes of binge eating that are associated with at least three of the following symptoms: eating more quickly than usual, eating until feeling uncomfortably full, eating large amounts of food without physiologically feeling hungry, eating alone out of embarrassment, and feeling guilty as a result of the binge. A diagnosis of OSFED or UFED indicates that an individual is experiencing impairment, however they do not meet full criteria for any of the other feeding or eating disorder diagnoses. When a diagnosis of OSFED is given, the clinician will indicate the reason why another diagnosis is not warranted. When a diagnosis of UFED is given, the clinician does not indicate why another diagnosis is given.

Ethnic identity. Ethnic identity describes someone's perceived acceptance and attachment to an ethnic group (Phinney & Ong, 2007). An ethnic group is a group that is defined by their adherence to shared cultural heritage, including specific traditions, rituals, values, and a shared language. There are two independent processes that are involved in the formation of an ethnic identity. The first is exploration of identity. This is when an individual is exploring their identity and gaining an understanding of what it means to belong to a specific ethnic group. Commitment is the second process that is described and this is when a person develops a connection to a specific group and engages in the process of adhering to the identity domains of that group.

Chapter 2: Review and Synthesis of the Literature

Relationship between Eating Disorders and Autism Spectrum Disorder

Research in the field of EDs and ASD has suggested that there is a relationship between the two disorders (Baron-Cohen et al., 2013; Coombs et al., 2011; Huke et al., 2013; Mandy & Tchanturia, 2015; Pooni et al., 2012; Tchanturia et al., 2013; Wentz et al., 2005). Multiple research studies have assessed the comorbidity between these two disorders and have found support for the hypothesis that there are increased prevalence rates of ASD in the ED population (Mandy & Tchanturia, 2015; Wentz et al., 2005). When examining the specific disorders, there is support that there are psychosocial and biological similarities between the two disorders as well.

Psychosocial similarities. Individuals who are diagnosed with EDs and ASD (independently and comorbidly) tend to express difficulty relating socially and emotionally to others, as measured in studies using the Autism Spectrum Quotient (Oldershaw et al., 2011; Hambrook et al., 2008; Coombs et al., 2011). The Autism Spectrum Quotient consists of five subscales that measure commonly expressed characteristics of ASD (communication, social skills, imagination, local details, and attention-switching). Hambrook et al.'s (2008) study found that when comparing participants who were diagnosed with an ED compared to healthy controls, the individuals who were diagnosed with an ED scored significantly higher on the Autism Spectrum Quotient subscales of social skills, attention switching, and imagination. This finding implies that individuals who are diagnosed with an ED expressed more distress related to these three subscales compared to individuals who were not diagnosed with an ED. Social skill impairment is commonly seen in individuals who are diagnosed with an ED and/or ASD. Recent studies have found support for the idea that individuals who are diagnosed with an ED report

higher levels of social impairment (Tchanturia et al., 2012b) and higher levels of social anhedonia (Tchanturia et al., 2012a). Individuals who are diagnosed with an ED also express difficulty engaging in tasks related to Theory of Mind (Oldershaw, Hambrook, Tchanturia, Treasure & Schmidt, 2010). This study found that individuals who were currently diagnosed with an ED had a difficult time identifying their own emotions as well as inferring the emotions of others.

Shared traits. There are similar traits that can be shared in individuals who are diagnosed with ASD and individuals who are diagnosed with an ED. For example, individuals with ASD sometimes exhibit an aversion to food, similar to what can be found in EDs (Schreck, Williams & Smith, 2004). Difficulties with food can range from ritualistic eating behaviors to a preference for certain foods or textures. Research suggests that this relationship with food that develops because of symptoms related to ASD can later develop into an ED (Schreck et al., 2004). Other characteristics that are commonly expressed in individuals who are diagnosed with an ED and individuals who are diagnosed with ASD include obsessive-compulsive personality disorder and perfectionism (Anckarsater et al., 2012).

It is unclear whether these shared traits are a result of commonalities between these two disorders or if the ASD traits are a result of self-starvation. While some researchers argue that the ASD traits that are observed result from the physiological effects of hunger (Keys, Brozek, Henschel, Mickelson, & Taylor, 1950; Oldershaw et al., 2011), other researchers suggest that the physiological effects of hunger do not explain the symptoms of ASD. Keys et al.'s (1950) study explored the relationship between personality and hunger. In this study, 36 male participants were placed on a strict low-calorie diet. Researchers found that when these men were in a state of starvation, they began to withdraw from others more, they displayed more self-centered

behaviors (such as stealing food from others), they would become obsessed with food and the process of mealtime, and they became less interested in engaging in relationships. As a result, their study provides evidence that traits of ASD could be related to self-starvation. However, other research suggests that this is not the case. Mandy and Tchanturia (2015) asked participants to complete activities from the Autism Diagnostic Observation Schedule. Participants with an ED reported symptoms of ASD and they reported that these symptoms were prevalent in their childhood, prior to the onset of their ED. This study indicates that the ASD symptoms were present before the ED symptoms, suggesting that the observed and reported characteristics could not be a result of nutritional deficiencies.

Biological similarities. There are a variety of biological similarities between EDs and ASD, starting in fetal development. Research has suggested that there is a link between distresses with birth and the later development of ASD, as well as a low Apgar score (which entails a quick assessment of multiple physical health indicators shortly after birth) and later ASD development (Glasson et al., 2004). Similarly, research suggests that premature birth is related to the later development of an ED (Favaro, Tenconi, & Santonastaso, 2006).

Baron-Cohen (2013) suggested there is evidence of abnormal functioning in areas of the brain that are related to social functioning (i.e., superior temporal sulcus, fusiform face area, amygdala, and orbitofrontal cortex) in individuals who are diagnosed with and ED and ASD. Research has also suggested that there are deficits in the hormone oxytocin in individuals who are diagnosed with an ED (Demitrack, 1990) and in individuals who are diagnosed with ASD (Modahl et al., 1998). Oxytocin related to sociability as well as a person's magnitude to love themselves or others (Odent, 2010).

Role of race/ethnicity in the relationship between eating disorders and autism spectrum disorder

Although current literature supports the relationship between ED symptomatology and characteristics related to ASD, current research has not investigated the role of race/ethnicity in this association. Furthermore, of the studies that have been examined, all but one (Coombs et al., 2011) study has not even listed the race/ethnicity demographic information for participants in their analyses (Baron-Cohen et al., 2013; Coombs et al., 2011; Pooni et al., 2012; Tchanturia et al., 2013; Wentz et al., 2005). Coupled with the fact that most of these studies employed the use of a clinical sample (Baron-Cohen et al., 2013; Pooni et al., 2012; Wentz et al., 2005) and research has suggested that Caucasian women are more likely to receive a diagnosis and subsequent treatment for an ED, and given the aforementioned independent relations between race/ethnicity and both ED and ASD diagnoses, it is important to more explicitly explore its role in this relationship (Becker et al., 2003; George & Franko, 2010).

There are plenty of concrete research-based examples of evidence of the relations between race and diagnoses of EDs and ASD. For example, results from Becker et al.'s (2003) study that observed racial differences in the diagnosis of EDs clearly show lower rates for Latinos (as well as Native Americans, thought the latter result was not statistically significant due to sample size; see Table 1). Similarly, research has suggested that Caucasian children are more likely to receive an earlier diagnosis and treatment for ASD compared to children from other racial groups (Liptak et al., 2008; Mandell et al., 2002; see Table 2 for results from Liptak et al.'s (2008) study). Consequently, research on the relationship between characteristics of ED and ASD should consider the impact of race on this association as it is unclear currently whether the relationship between characteristics of ED and ASD is supported exclusively in samples of

Caucasian individuals or whether these findings are generalizable to larger samples of individuals.

Table 1

Odds ratios for receiving a referral by ethnicity

	Significance Level of χ^2	**Odds Ratio**	**Confidence Interval**
African American	.5714	.92	.70, 1.2
Asian	.2697	.80	.54, 1.2
Latino	.0062	.62	.44, .87
Native American	.1251	.60	.31, 1.1

Note. N = 5,663. Odds ratio = Likelihood of receiving a referral for further evaluation. Revised from Becker et al. (2003).

Table 2

Prevalence of ASD per 10,000 by Age group and by Race and Ethnicity (revised from Liptak et al., 2008)

Age, yr	**Race**		**Ethnicity**
	Black Only	**White Only**	**Latino**
<6	23	30	30
6-12	66	72	44
13-17	45	50	13
Overall	46	51	26

Eating disorder symptoms and racial groups. Historically, EDs were culturally understood as disorders that only impacted Caucasian females. While this mindset is

overwhelmingly disputed in current literature, there are some racial group differences that should be explored (Marques et al., 2011). Specifically, it is important to address levels of body dissatisfaction and thin ideal internalization, as these are risk factors for developing EDs. When considering the impact of race/ethnicity on EDs, it is clear that women across racial groups tend to express similar levels of body dissatisfaction (Keel, 2005; Hermes & Keel, 2003). An exception to this rule is found in African American women (Rakhkovskaya & Warren, 2014). Differences in body dissatisfaction and internalization of the thin-ideal between racial groups will be explored in detail.

African American. As African American women develop, their body shape ideal also evolves. Striegel-Moore, Schreiber, Pike, Wilfley, and Rodin (1995) discovered that when African American females are younger, they report having a high desire for thinness (as cited in Keel, 2005). In fact, when compared to Caucasian females of the same age, African American females report having a higher desire for thinness. However, as African American females reach adolescence, their desire for thinness tends to remain stable (while it increases in samples of Caucasian females). It appears that as African American age, they have a tendency to focus less on thinness and body size as a source of inadequacy. African American women tend to report that thinness does not increase their romantic desirability or will not improve their life as much as Caucasian women believe it will (Atlas, Smith, Hohlstein, McCarthy, & Kroll, 2002; Vaughan, Sacco, & Beckstead, 2008). As a result, there is less extrinsic motivation for African American women to achieve the thin ideal or engage in weight-control behaviors in an attempt to lose weight. Culturally, African American women tend to accept a higher body size ideal compared to Caucasian women, and therefore African American women have a tendency to report lower levels of the thin ideal internalization, lower levels of dietary restriction, and an

overall higher body mass index compared to Caucasian women (Rakhkovskaya & Warren, 2014; Vaughan, Sacco, & Beckstead, 2008).

This phenomenon can be explained, at least in part, by Helms' (1995) model of identity formation in women of color (Harris & Kuba, 1997). The first stage in this model is considered the precultural awakening or conformity stage. In this stage an individual experiences low self-esteem and low esteem for individuals of the same culture. It is hypothesized that at this time that EDs can develop with higher frequencies because the individual is attempting to conform to the Eurocentric ideal. After the first stage, an individual enters the stage of dissonance. In this second stage, an individual is beginning to accept their culture and identity within their culture, however they are still not confident about themselves or their cultural identity. An individual in this stage will struggle between accepting themselves for who they are and wanting to change. The third stage is referred to as immersion-emersion. During this stage, an individual will begin to insert themselves into their culture of origin. This is the stage where an individual may begin to reject the Eurocentric views and begin to accept body ideals that are more relevant to their culture. As the body size ideal for African American women is larger than the ideal for European women, this can sometimes cause individuals to go in the opposite direction and begin to engage in binge eating and/or purging behaviors (as opposed to restrictive behaviors). The final stage is considered the internalization stage and this is when an individual accepts themselves and their culture and has a higher level of self-esteem. In this stage an individual worries less about cultural beauty ideals and cares more about their own personal internalized beauty ideal.

Although African American women tend to subscribe to a higher body size ideal, research suggests that they still develop ED symptoms comparable to Caucasian women

(Marques et al., 2011). In fact, Marques et al.'s (2011) study suggests that African American women have a tendency to develop bulimia nervosa and binge eating disorder more frequently than Caucasian women. This finding supports the research that suggests African American women are less likely to engage in dietary restriction than Caucasian women, but ED symptoms are still as prevalent among African American women as Caucasian women. Research suggests that African American women are more likely to use laxatives as a purging method (Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000).

Other research suggests that symptoms of EDs in African American women are a result of acculturation to the Western culture and ideals (Osvold & Sodowsky, 1993) and that having a strong ethnic identity is a protective factor against the development of problematic ED behaviors in African American women (Henrickson, Crowther, & Harrington, 2010; Rakhkovskaya & Warren, 2016). Another study found that there was a positive correlation between body appreciation and levels of ethnic identity, which would also support the hypothesis that ethnic identity is a protective factor for developing EDs (Cotter, Kelly, Mitchell, & Mazzeo, 2015). While it is unclear whether the association between EDs and African American women is consistent with the levels in Caucasian women, or the results reflect levels of acculturation, it is clear that African American women are less likely to receive mental health treatment for their ED compared to Caucasian women.

Asian. In terms of ED development in populations of Asian women, Asian women tend to report similar rates (compared to Caucasian women) of a desire to be thinner and a similar level of body dissatisfaction (Barnett, Keel & Conoscenti, 2001). When Asian women experience body dissatisfaction, it can be related to factors other than weight (such as height, eye shape, and eye color; Mintz, & Kashubeck, 1999). Asian women tend to report a smaller ideal

size and a smaller body size that others would consider attractive compared to Caucasian women. When comparing themselves to other Asian women, they tend to report higher levels of a desire to be thinner, however when comparing themselves to Caucasian women, they tend to report more confidence with their own bodies (Wong et al., 2017). The researchers suggest that this can be explained, at least in part, by the body size differences between Asian and Caucasian women, where Asian women tend to be smaller than Caucasian women.

Research conducted by Reiger, Touyz, Swain, and Beumont (2001) suggests that the Asian culture and ideals could account for the thinner ideal body type that is idealized in Asian culture. Inherently, the culture in Asian countries could endorse a smaller ideal size for women. Research by Mukai, Kambara, and Sasaki (1998) supports this finding, but furthers it by suggesting that this ideal size became more prevalent in Asian culture after World War II when Japan went through a period of "westernization". As a result, adherence to the Western ideal of beauty combined with the small body size ideal that is praised in Asian cultural heritage may have combined to create an extremely thin ideal in Asian women. On the other hand, some research suggests that Asian women have higher levels of body dissatisfaction and higher levels of ED pathology compared to Asian-American women and the longer that a woman is in the US, the lower her body dissatisfaction and ED symptomatology scores measured (Tsai, Curbow, & Heinberg, 2003). The study discussed how the traditional orientation and the gender roles and expectations in the Asian culture might have acted as a risk factor in ED development. In this hypothesis, a strong ethnic identity could act as a risk factor for the development of an ED. It is important to note, though, that other studies have found no relationship between ED symptomatology and ethnic identity in Asian samples (Cheng, 2014; Phan & Tylka, 2006). Fasting is another relevant part of some religious culture that could impact the frequency of ED

symptoms (Bhugra & Bhui, 2003). Fasting, as a means to lose weight, could be disguised as an aspiration to be more religious, and would generally be accepted in Asian culture. Research by Wong et al., (2017) suggests that while the American thin ideal is considered to be thin and muscular, the Asian thin ideal is considered to just be thin (without the addition of a muscular physique) and that the role of acculturation is not fully researched. The research regarding the role of ethnic identity and acculturation on ED development in Asian women is inconclusive.

***Hispanic/Latino*.** Research with Hispanic women seems to be heavily influenced by levels of acculturation. Hispanic women report higher levels of body dissatisfaction than Caucasian women when they report higher levels of acculturation, and thus higher levels of subscription to the Western ideal of beauty (Robinson et al., 1996). This study also suggested that ED development in Hispanic women was related to acculturation, which makes sense as research suggests that high levels of body dissatisfaction and thin ideal internalization is related to ED development.

Similar to African American women, Hispanic women tend to idealize a larger body size ideal compared to Caucasian women, however this does not exclude them from ED development (Marques et al., 2011). As Hispanic women become more acculturated and adhere to the Western body size ideal, there are discrepancies between their cultural ideal and the Western ideal, which could result in an individual's desire to alter his or her body size. This finding is supported by Robinson et al.'s (1996) research, which found that Hispanic women had a higher level of body dissatisfaction compared to Caucasian women. As a result, EDs could develop in this population. Research suggests that Hispanic women are more likely to use diuretics as a means to purge compared to other purging methods (Cachelin et al., 2000). Similar to African

American women, Hispanic women are underrepresented in the sample of women who receive a diagnosis and treatment for an ED.

One study found that family rigidity was related to increased ED symptoms in Mexican American women (Kuba & Harris, 2001). In this particular study, the average education of parents of participants was eighth grade. The participants of this study were in a transitional generation and it was suggested that the girls in the study might have been surpassing their caregivers in terms of academic success. In response to this, the parents may have been implementing stricter cultural constraints so that the women in the study do not lose out on their cultural traditions and expectations.

Why might race/ethnicity play a role in ED diagnoses? While the research suggests that women of all racial groups can develop EDs, the question becomes why is there an overrepresentation of Caucasian women who are receiving treatment for an ED? When identical scenarios were presented to college students, 93% recognized ED symptoms in the case subject when she was Caucasian compared to 79% when she was Hispanic or African American (Gordon, Perez, & Joiner, 2002). While some might argue that this finding exists only because the participants rating the case subject were not necessarily trained in assessing for ED symptoms, this study was replicated with a group of clinicians (Gordon, Brattole, Wingate, & Joiner, 2006). Results from that study were consistent with the previous study. When the subject was Caucasian, 44% of clinicians recognized her ED symptoms, which only 40.5% recognized the symptoms when she was Hispanic and 16.7% when she was African American. Furthermore, in both studies, participants were asked to complete an ED scale (the Eating Disorder Inventory) as the case subject would have completed it. In both studies, participants completed the scale similarly and noticed the ED symptoms, regardless of race. However, the

results indicated that although participants recognized the symptoms and completed the scale consistently, participants were less likely to identify the symptoms as "eating problems" when the case subject identified as Hispanic or African American compared to Caucasian.

Studies suggest that there is a difference in access to care between minority and non-minority (Caucasian) participants (Becker et al., 2003; Cachelin, Rebeck, Veisel, & Striegel-Moore, 2001; Cachelin et al., 2000). There are no differences in access to health care services, education level, or treatment-seeking behaviors between groups, however there is a difference in follow-up between groups. Ethnic minority participants are less likely to seek out ED specific treatment compared to non-minority participants (Becker et al., 2003). This could be explained, at least in part, by clinician bias. Physicians and mental health professionals were less likely to inquire about ED symptoms in ethnic minority participants compared to non-minority participants even though the symptoms expressed by participants were comparable between groups. Regarding follow-up, clinicians were less likely to refer minority participants for further evaluation for their symptoms compared to non-minority participants. In Cachelin et al.'s (2001) study, 57% of participants sought out treatment at some point, but only 8% of the entire sample had received treatment.

Collectively, the research suggests that ED symptoms are not identified in the same magnitude among African American, Hispanic, and Asian women as they are among Caucasian women. However, Caucasians tend to score higher on scales assessing ED symptomatology compared to other racial groups. It is unclear if this discrepancy is a result of clinician bias or if there are specific cultural factors that may prevent the development of clinical eating disorders in non-Caucasian samples (Robinson et al., 1996).

Acculturation and ethnic identity seem to play a role in the racial differences noted within the ED population. Cachelin et al.'s (2000) study suggests that higher levels of acculturation are related to high levels of ED psychopathology. Additionally, individuals who expressed lower levels of acculturation were less likely to seek or receive treatment for ED symptoms.

Autism spectrum disorder and racial groups. When reviewing literature on diagnosis and treatment of ASD in children, it appears that Caucasian children receive a diagnosis and treatment sooner than African American children. In a study conducted by Mandell et al. (2002), African American children received a diagnosis of ASD an average of a year and a half later than children who were of Caucasian descent. Additionally, African American children had to be in treatment for three times as long and attend three times the number of visits compared to Caucasian treatment before receiving a diagnosis of ASD. Another study by Mandell et al., (2009) found that when analyses were adjusted, minority children were less likely to receive a documented ASD diagnosis compared to Caucasian children. This study used a community sample and information gathered by the ADDM network (a program through the Centers for Disease Control and Prevention that aimed to estimate prevalence rates of ASD) instead of looking at children who were already diagnosed to ensure that the results were not biased based on who received a previous diagnosis of ASD. Similar to the findings with EDs, this highlights the clinician or assessment bias when assessing children from diverse racial groups. Research suggests that although there are no delays in a caregiver's first indication of concern, Caucasian children are more likely to receive a diagnosis earlier compared to African American or Hispanic children (Jang, Matson, Cervantes, & Konst, 2014).

There are some limitations to the current literature that need to be addressed when understanding the relationship between ASD and race (Fombonne, 2003). The extant research

uses primarily Caucasian samples or small sample sizes, where there is not enough power to effectively detect differences. For example, a study conducted by Mayes and Calhoun (2011) found that race did not influence ASD severity or symptoms in their sample, however their sample included only 58 (out of 777) non-Caucasian participants. These results may reflect the population of individuals who are receiving a diagnosis and treatment for ASD, however it does not reflect the finding that individuals of any race can develop ASD at equivalent frequencies.

Why might race/ethnicity play (or not play) a role in ASD diagnoses? Research on ASD focuses more on racial differences in diagnosis and subsequent treatment of individuals with ASD instead of on presenting differences within this population. The current research on the topic does not find any links between racial groups and an elevated risk of developing ASD, however there are proposed racial/ethnic differences that exist as a result of an individual's culture, which may act as a risk or protective factor in developing ASD. For example, when comparing conversations between Chinese mothers and their children and American mothers and their children, Wang and Fivush, (2005) found that Chinese mothers were more likely to focus on social interactions and American mothers were more likely to focus on the child's personal experiences. Chinese mothers were more likely to focus on social themes, while American mothers focused more on personal themes. This finding is also supported in research by Zaroff and Uhm (2012), who suggest that when Chinese children retell a story, they focus more on others, while American children have a more egocentric focus. Linguistic differences (such as the emphasis on the accuracy of beliefs) can also be a protective factor in Asian culture (Zaroff & Uhm, 2012). As a result, themes that are emphasized in Asian culture could serve as a protective factor in the development of ASD (Zaroff & Uhm, 2012).

When examining the Hispanic population, Palmer, Walker, Mandell, Bayles, and Miller (2010) found that there was an inverse relationship between Hispanic students in a school district and the prevalence of ASD diagnoses. Specifically they found that a 10% increase in Hispanic children in the school corresponded with an 11% decrease in ASD diagnoses in the school. In the analyses, researchers controlled for socioeconomic variables, as it is frequently assumed that they may be confounding variables in the association between race and ASD.

Chapter 3: Interpretations, Conclusions, and Recommendations

To date, there is no literature that addresses the role of ethnic identity in the relationship between ASD and EDs, even though it is a possible candidate mechanism to explain why race/ethnicity may play a role in the diagnoses of ASD and EDs, as well as their possible relationship with each other. The purpose of this literature review was to synthesize the current literature that examines constructs related to ethnic identity, ASD, and EDs and to develop hypotheses related to the relationship between these three variables.

Ethnic identity is distinct from race/ethnicity because race/ethnicity is a demographic variable, but it does not suggest the level of investment that an individual has to their culture of origin. Ethnic identity, on the other hand, suggests the degree of investment that an individual has to their culture. In EDs, ethnic identity may be related to an individual's tendency to develop an ED as well as the type of ED that an individual develops, however ethnic identity does not appear to be related to atypical symptoms that cannot be assessed via traditional assessment measures. Regarding ASD and ethnic identity, it appears that ethnic identity may play a role in the presentation of ASD symptoms, which could influence the likelihood of a diagnosis. In minority groups, ethnic identity can act as a protective factor. In ASD, ethnic identity can potentially act as a protective factor by acceptance and teaching of cultural values, such an emphasis on social themes (Wang & Fivush, 2005). In EDs, ethnic identity can act as a protective factor by adhering to alternative body-size ideals (compared to the thin-ideal). Conversely, in Caucasians, ethnic identity can act as a risk factor for developing ASD and/or EDs because of the culture themes that are emphasized and the thin body-size ideal that is accepted. As a result, the research suggests that when looking at Caucasians, ethnic identity may be a key factor that is related to the relationship between EDs and ASD diagnoses. This would

also help to explain why the literature focuses primarily on the Caucasian population. While it is important to note that this does not mean that an individual from a minority culture cannot be diagnosed with comorbid ASD and an ED, ethnic identity could help to explain why an ethnic minority with a diagnosis of ASD and ED could be a rarer phenomenon.

Implications for Practice

Throughout the course of the review, there were a few themes that emerged related to treatment recommendations when working with clients who present with ASD and/or an ED. When working with clients in general, but particularly with this population, it is important for clinicians to assess the developmental stage and life circumstances of an individual as well as where they are in their ethnic identity development. The literature suggests that these constructs may be interrelated (Cotter et al., 2015). For example, an individual who is going through a transition and entering college may experience a conflict in their ethnic identity because of the change in their physical environment and the cultural make-up of their new home. This may increase the chances of the development of an ED because of the multiple stressors and the interaction between their environmental change and fragile ethnic identity development.

Clinicians should also attempt to consider the role of race and stage of ethnic identity when working with clients. Clinicians can also work with clients to strengthen their personal ethnic identity, as this was seen as a protective factor for individuals from a minority culture. If clinicians are able to address issues such as Eurocentrism in the United States with their clients, clients may develop a stronger ethnic identity (Harris & Kuba, 1997).

Clinicians need to be aware of their own biases when diagnosing clients. The age of diagnosis for ASD tends to be younger than a diagnosis of ED. However, if proper diagnosis of ASD is not achieved when an individual is younger, it could work to explain some of the

treatment resistance that is observed in cases of ED and further complicate the symptoms of the ED. Instead of addressing the symptoms of the ED independently, it would be important for the clinician to concurrently address the symptoms of the ASD in order to increase the chances for recovery. Ethnic identity also may play a role in accurate diagnosis and treatment of ASD at a younger age due to the discrepancies in race in terms of diagnosis of ASD.

As a clinician, it would be important to understand how an ASD can impact an ED and vice versa. For example, when working with an individual on an ED diagnosis, it would be important for a clinician to understand how ritualistic behavior that is observed in ASD can also be impacting the ED. It may also be important to address rigid thinking patterns with clients. An understanding of the overlap between the disorders could act as a tool in treatment. For instance, if a clinician is aware of specific textures that a client experiences an aversion to, the clinician can acknowledge this with the client. In this case, treatment may focus on the nature of the aversion to food in the context of ASD and then address the overall eating concerns. Conversely, an ED (and particularly a lack of proper nutrition) may predispose an individual to engage in more rigid, dichotomous thinking that could exacerbate ASD symptoms. If the clinician is able to work with the client and a treatment team in order to effectively re-nourish the client, then there may be more success in addressing the ASD symptoms.

Directions for Future Research

Future research should further examine the role of ethnic identity in the relationship between ASD and EDs. It would be imperative that future research uses a community-based sample, as research suggests that both of these disorders have an overwhelming amount of Caucasians within their clinical populations. The role of clinician bias also needs to be assessed in future research. While there are cultural protective factors that would decrease the likelihood

of minority individual's expression clinical presentations of these disorders, research also suggests that there is bias in diagnosis between racial groups (Gordon, Brattole, Wingate, & Joiner, 2006; Gordon, Perez, & Joiner, 2002).

Future research would benefit by engaging in exploratory studies examining the influence of ethnic identity on the relationship between ED characteristics and characteristics of ASD, as there is currently no research that examines the role of ethnic identity in the relationship between the two disorders. In order to accomplish this, one avenue would be for researchers to collect survey data. Participants could consist of individuals from the general population, so that racial/ethnic heterogeneity of the sample can be achieved. In an attempt to assess for traits of ASD, the Autism Quotient-10 (AQ-10; which an adapted version of the 50-item Autism Spectrum Quotient) could be used (Allison, Auyeung, & Baron-Cohen, 2012). In an attempt to measure traits of EDs, the Eating Disorder Examination Questionnaire (EDE-Q) could be used (Fairburn & Beglin, 2008). The EDE-Q consists of four subscales related to EDs: Restraint, Eating Concern, Shape Concern, and Weight Concern and a global EDE-Q score is calculated based on the subscale scores. In an attempt to assess for ethnic identity, the Multigroup Ethnic Identity Measure (MEIM) could be used (Phinney, 1992). There are two subscales that comprise the MEIM: the Ethnic Identity Search and Affirmation, Belonging, and Commitment. Finally, a demographics questionnaire could also be used to collect basic demographic information such as age, race, and level of schooling. All of the suggested measures have demonstrated strong validity and reliability in previous studies, and thus would be appropriate to use for a proposed study such as this. This proposed research design would be cross-sectional and involve correlational analyses; however, it could also involve follow-up surveys with participants to longitudinally examine the potential effects over time.

Other research should also work to address the role of racial identity in individuals who are diagnosed with ASD. This information could be collected via self-report surveys (such as the MEIM), through a qualitative research design (perhaps involving semi-structured interviews), or from caregiver reports. If researchers collected data either through qualitative means or from caregiver reports, it would be important to recognize the possibility of and attempt to minimize researcher and/or caregiver bias.

Future research may also benefit to examine the potential for a shared genetic predisposition or shared genetic traits between the two disorders. Previous research has examined some biological similarities between ASD and EDs and research on EDs and ASD independently has suggested a genetic basis for the development of the disorders, therefore research would benefit from further examining the potential for shared genetic links.

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